

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

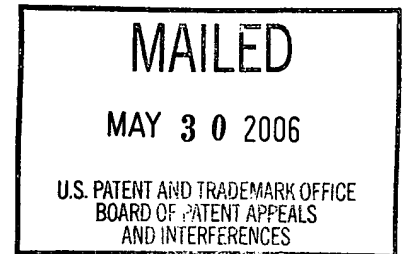
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte OLAF DUEBEL, AXEL KOENIG, PER EKDUNGE, PETER ALIN,
JESSICA GRACE REINKINGH and RONALD MALLANT

Appeal No. 2006-1114
Application No. 09/700,833

ON BRIEF



Before KIMLIN, WALTZ, and JEFFREY T. SMITH, Administrative Patent Judges.

WALTZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the primary examiner's final rejection of claims 17 through 31. The remaining claims pending in this application are claims 32 through 40, which stand allowed by the examiner (Brief, page 2; Answer, page 2, ¶(3)). We have jurisdiction pursuant to 35 U.S.C. § 134.

According to appellants, the invention is directed to a fuel cell system that includes a reformer unit that produces hydrogen from a raw material, a fuel cell unit that is disposed downstream

of the reformer that operates with the produced hydrogen, an oxidation unit disposed between the reformer and the fuel cell unit to convert carbon monoxide into carbon dioxide, and a water injection device disposed at the oxidation unit that injects water into the oxidation unit (Brief, pages 2-3). Illustrative independent claim 17 is reproduced below:

17. A fuel-cell system, comprising:

a reformer unit configured to produce hydrogen from a raw material;

a fuel-cell unit disposed downstream of the reformer unit and operable in accordance with the hydrogen produced by the reformer unit;

an oxidation device configured to convert carbon monoxide into carbon dioxide and disposed between the reformer unit and the fuel-cell unit; and

a water-injection device disposed at the oxidation device and configured to inject water into the oxidation device;

wherein the oxidation device is configured to convert carbon monoxide into carbon dioxide by a reaction of carbon monoxide with oxygen supplied by the water injected by the water-injection device; and

wherein, based on the oxygen supplied by the water injected by the water-injection device, a reduced amount of a supplemental oxygen containing substance is supplied to the oxidation device.

The examiner has relied on the following references as evidence of unpatentability:¹

Buswell et al. (Buswell)	5,360,679 ²	Nov. 01, 1994
Pettit	6,077,620	Jun. 20, 2000
Kawatsu et al. (Kawatsu)	6,120,925	Sep. 19, 2000
Negishi	6,165,633	Dec. 26, 2000

Claims 17, 19, 30 and 31 stand rejected under 35 U.S.C. § 102(e) as anticipated by Kawatsu (Answer, page 3). Claims 17, 22-25, and 28-30 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Buswell in view of Kawatsu (Answer, page 4). Claims 17-21, 30 and 31 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Negishi in view of Kawatsu (Answer, page 6). Claims 17-19, 26, 27, 30 and 31 stand rejected under 35 U.S.C.

¹In addition to the references noted below, the examiner has relied on Silver, U.S. Patent No. 6,455,182, issued Sep. 24, 2002, and Igarashi et al., EP 1 161 991 A1, published Dec. 12, 2001 (Answer, page 3, ¶(8)). However, the examiner has relied on these references in the response to appellants' arguments (Answer, page 9) but failed to positively recite the use of these references in the statement of the rejection (Answer, page 3). Therefore we do not consider these references as evidence in this appeal. See *In re Hoch*, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970). We also note that appellants challenge the availability of Silver as prior art (Reply Brief, page 3) and the examiner has not responded to this challenge.

²Appellants and the examiner repeatedly refer to Buswell as U.S. Patent No. 5,630,679 while the actual U.S. Patent No. is as noted, i.e., 5,360,679 (italics added). See the Brief, page 2, ¶3, and the Answer, page 3, ¶(8), and page 4. Since the examiner's findings from Buswell are not in dispute (Brief, page 9), we hold this error harmless.

§ 103(a) as unpatentable over Pettit in view of Kawatsu (Answer, page 7).

Based on the totality of the record, we *affirm* all rejections on appeal essentially for the reasons stated in the Answer, as well as those reasons set forth below.

OPINION

A. The Rejection under § 102(e)

The examiner finds that Kawatsu discloses a fuel cell system comprising a reformer unit (32), a fuel cell unit (20), and a carbon monoxide selective oxidation device (34) disposed between the reformer unit and the fuel cell unit (Answer, page 3, citing Figure 1). The examiner further finds that Kawatsu teaches a water injection device (80) disposed at the oxidation device, which water injection device is "configured to inject water therein" (Answer, page 4, citing Figures 7, 8 and col. 14, l. 46 et seq.). The examiner admits that the reference does not disclose that the injected water participates in the oxidation of carbon monoxide into carbon dioxide, but finds that the water injection device injects water such that it is capable of participating in this reaction (Answer, page 4). Therefore the examiner concludes that the claimed subject matter is anticipated by the disclosure of Kawatsu (*id.*). We agree.

Appellants argue that, while Kawatsu discloses that a supply of water is fed to a selective carbon monoxide oxidizing unit, nowhere does the reference disclose or suggest a system in which a reduced amount of the supplemental oxygen-containing gas is supplied to the oxidation unit based on the amount of oxygen supplied by the injected water (Brief, pages 6-7). Appellants further argue that Kawatsu only discloses that water is supplied to the carbon monoxide oxidizing unit to cool the catalyst stored in the unit, and the oxygen-containing gas is the one that bonds to the carbon monoxide to form carbon dioxide (Brief, page 7, citing col. 2, ll. 28-30, of Kawatsu; Reply Brief, page 2). Appellants argue that the disclosure in Kawatsu does not constitute a disclosure or suggestion that the oxidation device is "configured" or "structured" to convert carbon monoxide into carbon dioxide by using oxygen supplied by the injected water as required by claim 17 on appeal (Brief, page 7; Reply Brief, page 3). Appellants argue that claim 17 on appeal does not merely recite an intended use but serves to precisely define a present structural attribute (Brief, page 8).

Appellants' arguments are not persuasive.³ Implicit in our review of the examiner's anticipation analysis is that the claim must first have been correctly construed to define the scope and meaning of each contested limitation. See *Gechter v. Davidson*, 116 F.3d 1454, 1457, 43 USPQ2d 1030, 1032 (Fed. Cir. 1997). As correctly construed by the examiner (Answer, pages 8-10), claim 17 on appeal is directed to an apparatus that includes, as essential elements, a reformer unit, a fuel-cell unit, an oxidation device, and a water-injection device.⁴ Process limitations do not restrict the scope and meaning of the claimed apparatus elements, as long as the apparatus elements are capable of performing the intended process limitations (Answer, page 8; see *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). As correctly found by the examiner (Answer, pages 3-4 and 9), Kawatsu discloses a water injection device that directly sprinkles atomized water onto the catalysts in the oxidation unit, including embodiments where the oxidizing

³Since appellants limit their arguments to claim 17 on appeal, we focus on this claim in our discussion below.

⁴The claimed transitional phrase "comprising" means that the claim drafter indicates an open construction of at least what follows this phrase and potentially more. See *Vehicular Techs. v. Titan Wheel Int'l, Inc.*, 212 F.3d 1377, 1383, 54 USPQ2d 1841, 1845 (Fed. Cir. 2000).

gas and water are separately or jointly introduced into the oxidizing unit (Kawatsu, Figures 8 and 9, and col. 14, ll. 39-65). Thus the injected water disclosed by Kawatsu is present on the catalyst when the oxidation of carbon monoxide to carbon dioxide occurs. Appellants disclose injection of water into the oxidation device (page 4, ll. 31-34), preferably in the form of a vapor or aerosol (page 7, ll. 15-16), by a water injection device (see Figure 1, number 46) for cooling purposes, as well as to supply oxygen necessary to oxidize carbon monoxide (page 5, ll. 2-6; page 6, l. 30-page 7, l. 5; and page 8, ll. 27-31). Therefore, although appellants have found an additional function for the injected water other than cooling, we find no difference in *structure* between the claimed water injection device and the water injection device disclosed by Kawatsu.

For the foregoing reasons and those stated in the Answer, we determine that the examiner has met the initial burden of establishing that the apparatus disclosed by Kawatsu is capable of performing the process limitations recited in claim 17 on appeal. Therefore the burden of proof has shifted to appellants, who have not presented convincing evidence or reasoning in rebuttal. See *In re Schreiber, supra*. Accordingly, we affirm

Appeal No. 2006-1114
Application No. 09/700,833

the rejection of claims 17, 19, 30 and 31 under 35 U.S.C.
§ 102(e) as anticipated by Kawatsu.

B. The Rejections based on § 103(a)

Appellants do not contest the examiner's findings of fact and conclusions of law with regard to the primary references to Buswell, Negishi and Pettit, as combined with Kawatsu, other than disputing Kawatsu as discussed above (Brief, pages 9-11). Accordingly, we adopt our comments from above, as well as the examiner's factual findings and conclusions of law regarding the above noted references. Therefore the rejections based on section 103(a) are also affirmed.

C. Summary

The rejection of claims 17, 19, 30, and 31 under 35 U.S.C. § 102(e) over Kawatsu is affirmed.

The rejection of claims 17, 22-25 and 28-30 under 35 U.S.C. § 103(a) over Buswell in view of Kawatsu is affirmed. The rejection of claims 17-21, 30 and 31 under 35 U.S.C. § 103(a) over Negishi in view of Kawatsu is affirmed. The rejection of claims 17-19, 26, 27, 30 and 31 under 35 U.S.C. § 103(a) over Pettit in view of Kawatsu is also affirmed.

The decision of the examiner is affirmed.

Appeal No. 2006-1114
Application No. 09/700,833


No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (2004).

AFFIRMED

Edward C. Kimlin
EDWARD C. KIMLIN
Administrative Patent Judge

THOMAS A. WALTZ
Administrative Patent Judge

BOARD OF PATENT
APPEALS
AND
INTERFERENCES


JEFFREY T. SMITH
Administrative Patent Judge

TW/rwk

Appeal No. 2006-1114
Application No. 09/700,833

KENYON & KENYON LLP
ONE BROADWAY
NEW YORK, NY 10004